

Hobbies

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A Rack and Container complete in this PEN AND PENCIL BOX

FOR the fellow who wants to make himself a useful pen and pencil box for general use the one shown here should make an appeal. The completed box is shown here, and anyone with a few fretwork and carpentry tools can easily make one up.

The box closes down quite compactly, but where the lid is opened it rests in an upright position and has on the inside two handy racks for pens and pencils.

Hinged Lid

These racks are hinged to the lid so they fold under and lie flat when the box lid is down. The inside of the box is divided into three compartments by means of partitions.

The box is quite straightforward to make and most of the wood is $\frac{3}{16}$ in. thick, and therefore not difficult to cut and true up. It is not the simplest thing to do to cut a perfectly straight line with the fretsaw, but any little wavy lines or inaccuracies may always be readily got rid of on a sheet of glasspaper that has been glued down to a good flat board.

Wood to Use

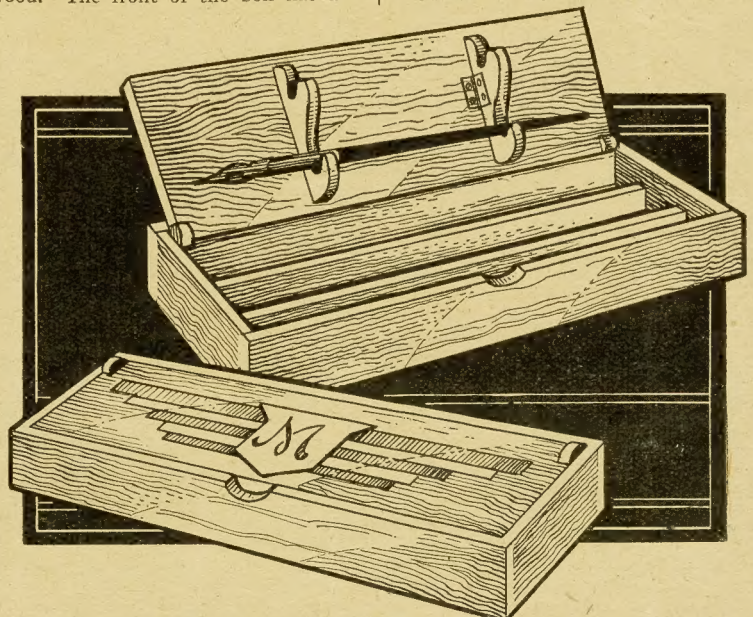
A fairly close-grained wood such as oak, beech or sycamore should be chosen if possible, and the great point in making up the box is to see the

parts have been marked out accurately.

There are two long sides measuring $8\frac{1}{2}$ ins. by $1\frac{1}{2}$ ins. and two ends 3ins. by $3\frac{1}{2}$ ins. by $1\frac{1}{2}$ ins. and these are glued and pinned to a floor measuring $8\frac{1}{2}$ ins. All these parts can be marked out with a square and rule direct on to the wood. The front of the box has a

small segment cut away to provide a thumb hold for lifting the lid.

When the five pieces have been cut, glue the sides to the floor and then the ends between the latter keeping all the faces flush with the edge of the floor. The two partitions D (Fig. 1) are cut from $\frac{1}{4}$ in. wood, and should be measured direct from the



box so far made up, so they fit exactly.

A third partition C is required as a support for the lid when it is thrown up into an upright position. This is clearly seen in the sectional view Fig. 2.

The top edge of partition C, it must be noted, stands $\frac{3}{16}$ in. below the top edges of the sides and ends of

pivoted to the ends two hard-wood discs are cut $\frac{1}{4}$ in. diam. and recessed into the back corners of the lid, as seen in the enlarged details in Fig. 3.

The discs are glued firmly and further strengthened by driving in two fret pins in each disc, holes of course being bored with a fine drill first. Holes are made in the ends of the box to take the pivot screws.

shown measures $\frac{1}{4}$ in., so a series of squares can be drawn on a piece of wood measuring $2\frac{1}{2}$ ins. by 1 in. and the shape drawn through them.

Cut one rack with the fretsaw and clean it up with glasspaper. Then use this for drawing round on another

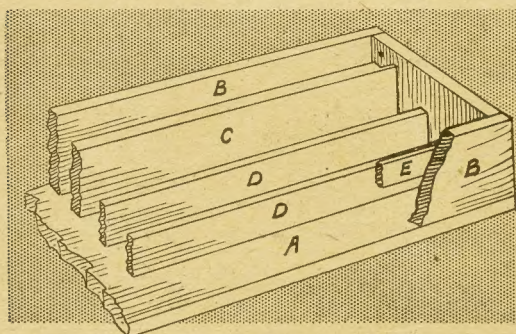


Fig. 1—Showing construction of the box portion

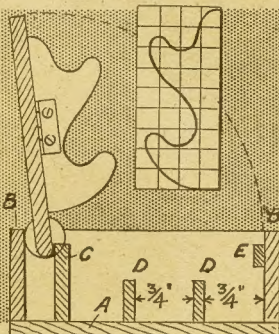


Fig. 2—End elevation and detail of rack

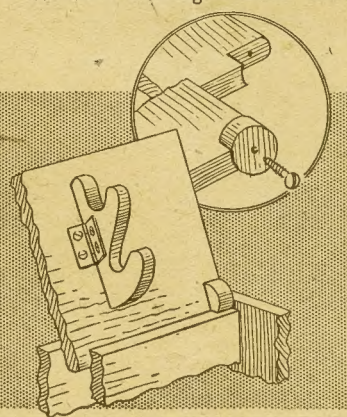


Fig. 3—Rack hinge and screw pivot

the box so the lid lies on it when it is down.

To provide a rest for the lid to fall on at the front of the box, a $\frac{1}{4}$ in. strip of wood $\frac{1}{4}$ in. wide and running the whole length of the box inside is glued $\frac{3}{16}$ in. down from the top edge as E in Figs. 1 and 2.

The Lid and Racks

The lid is a plain piece of wood $\frac{3}{16}$ in. thick and cut to fit snugly between the sides and ends of the box. Now as the lid needs to be strongly

These holes are sufficiently large to allow the screws to turn freely, so when the lid is laid in place the screws are put through the ends and are run as a fixing into the discs.

The racks are cut from $\frac{3}{16}$ in. wood and are fixed by means of a pair of $\frac{1}{4}$ in. hinges. A shallow recess should be cut in the tracks to allow the hinge when folded down to lie flush with the wood.

In cutting the racks the squared diagram in Fig. 2 will assist in getting the correct outline. Each square as

piece of wood to produce the second rack.

Some simple form of decoration may be put on the lid, such as shown in the sketch of the closed box. Stains may be used or even enamel in different shades. A shield may be added of thin wood or metal and a monogram added as suggested in the sketch.

Three Hobbies standard panels of fretwood G3 and one G2, will be sufficient for making up this useful little pencil box.

Marvellous results which were brought about by AN ELECTRICAL EXPERIMENT

EVER wonder how an electro-magnet works? It is a simple invention, now over a hundred years old, discovered by a humble shoemaker called William Sturgeon. This man had a scientific turn of mind and was usually "trying things" and fiddling around with bits of wire, batteries and so forth, just as you do at times.

Then, one day, he noticed a peculiar thing. Not having a proper spool, he wound some fine coil wire around a piece of iron, possibly an old key or slender iron bolt.

Anyway, doubtless wondering what would happen if he connected the ends of the wire to a battery, he tried it—then probably whooped with joy, for something happened on the bench at which he was sitting.

The First Magnet

No, there was no sudden bright flash. The makeshift "spool" became a magnet, attracting loose nails and similar articles.

Disconnecting one of the wires, the magnetism ceased instantly and the

attracted articles fell away. You can try the same experiment with a small key and a length of coil (covered or enamelled) wire and a flashlamp battery.

You will find that the greater the windings the greater the magnetic quality of the key. However, too many windings will set up too much resistance. A double winding on a small padlock key and a $4\frac{1}{2}$ -volt flashlamp battery provides great power.

A Revolutionary Discovery

It is from such a simple idea that many new electrical inventions were born, such as electric bells, buzzers, wireless loud-speakers, ear-phones, pick-ups, dynamos, motors, tram and train brakes, cranes, surgery devices, etc., etc. Nearly every working electrical appliance or device depends on the electro-magnet principle.

The discovery made by the shoemaker is in various elaborate disguises, but the idea is just the same. If you wish to experiment on it further, withdraw the iron core (key or bolt) from the coil and suspend it

by thread in mid air.

The coil, attached to the battery by delicate coil wire, will slowly turn into an N. and S. line—the same as an energised sewing needle if floated in a bowl of water. To energise a sewing needle or pin, by the way, rub it several times with a permanent magnet.

Small Beginnings

"The beginnings of all things are small," says Cicero. If the discoverer of the electro-magnet could come back to the world today, he would see how much his crude experiment has benefited mankind—from tiny electric motors to giant dynamos, ships, aeroplanes, the list being almost unending, for the electro-magnet is the "heart" of all working electrical devices.

So, if you are of an inventive turn of mind, continue to dabble with pieces of wire, batteries, bulbs, coils, magnets, and so forth. Perhaps you might "hit" on a new, clever discovery—a revolutionary idea, some thing that would benefit mankind. Who knows?

Odds and ends make this handy combined LIGHTER SPILLHOLDER

ANY gadget that will help to save matches is a welcome addition to the home these days. The combined spill holder and lighter illustrated solves the difficulty. Besides being quite attractive, it is easily made and is very economical in use. A teaspoonful of paraffin oil is enough to keep the small flame of the lighter burning all day.

The base is cut from a piece of $\frac{1}{4}$ in. wood $7\frac{1}{2}$ ins. long and $3\frac{1}{2}$ ins. wide. The shape of it is shown at Fig. 1. The holder for the spills and paraffin lighter are made from a length of cardboard tube, the kind that pictures are sent through the post in is just right.

Tubing Suitable

A picture framer or stationer will supply a length for a few pence. Get one with an inside diameter of just over $1\frac{1}{2}$ in. although a little smaller or larger does not matter provided the lighter tin will fit inside easily. Cut one piece $3\frac{1}{2}$ ins. and another 2 ins. long with a fretsaw or fine tenon saw, turning the tube between each few cuts.

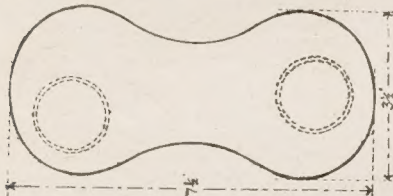


Fig. 1—Shape of the base

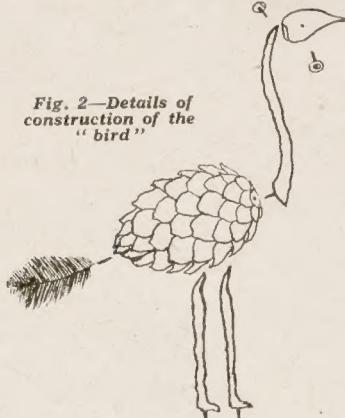


Fig. 2—Details of construction of the "bird"

To fasten them firmly to the base cut two circles from $\frac{1}{4}$ in. fretwood to fit tight inside the tubes. Glue these pieces to the base and secure with a fine nail. Then run a little glue round the inside edge of each tube, press into position over the circles and put aside for the glue to set.

A walk into the woods or along a country lane will provide the material

for the attractive bird (Fig. 2.) A fir cone is used for the body, a beech nut for the head while the neck and legs are made of twigs. The secret of making a realistic bird lies not so much in assembling the parts as in the care taken to find the pieces which are as near to nature as possible.

The illustration shows clearly how each part is fitted together. Take a fat beech nut and with a fine-pointed pair of scissors cut a hole to fit the neck into. Then on either side make a small hole for the eyes. These are two coloured beads threaded on a pin, the end being cut off so that only $\frac{1}{4}$ in. projects. Place a spot of glue on the hole in the nut and press the pin, together with the bead, through. Do the same with the neck and put aside to set.

Body and Head

Now proceed with the body and legs. First slightly point the twigs, give each a touch of glue and push in between the layers of the cone which act as springs and grip the legs firmly.

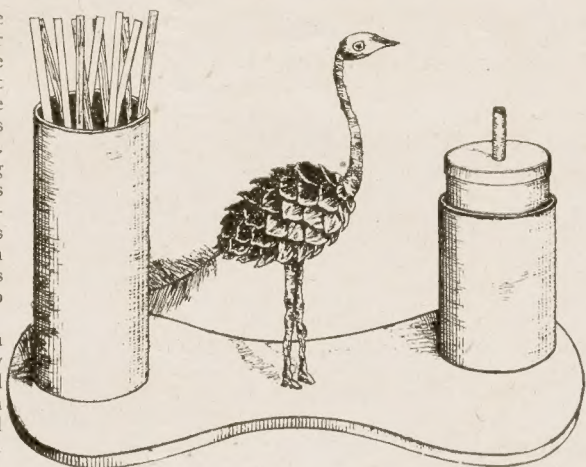
When the body and head have set the two can be glued and joined, using a small piece of wire to make a stronger joint. There only remains the tail feather to glue into the end of the cone to complete.

An endless variety of birds can be made by altering the length and shape of the neck and legs, and by using different kinds of cones. Also by painting the cones many more gay kinds are possible. The bird is fixed to the base with glue and strengthened with two pins pushed into the legs and base.

Painted Finish

The card tubes are best painted with a coat of enamel and the base can be treated in the same manner if you wish. Before doing this the parts should be given a coat of size or very thin glue and allowed to dry thoroughly before any enamel is applied.

The making of the paraffin lighter is quite easy, or one may be bought ready. A small tin with a well fitting lid is needed, and a hunt round the house is sure to unearth just the thing. The best shape is a round tin about $1\frac{1}{2}$ in. diameter and about $2\frac{1}{2}$ ins. high.



The little tube for the wick which is soldered to the lid of the tin, is made from a piece of thin sheet tin, shaped by bending it round a knitting needle with a pair of pliers. The finished tube should have an inside diameter of just over $\frac{1}{4}$ in.

Lighter Wick

Place the lid on a block of lead and punch a hole in the centre and open out to fit the small tube with a round file. The tube should project about $\frac{1}{4}$ in. on the outside. A little solder should then be run round to fasten it securely. It is not necessary to solder the seam of the tube.

Next thread a petrol lighter wick through the tube and leave it long enough to reach to the bottom of the tin when the lid opens. Then pack some cotton wool lightly round the wick so as to fill the tin. Pour in a spoonful of paraffin oil, replace the lid and test the flame. If the wick is kept about level with the top of the tube there will be a smokeless flame which uses very little oil.

Here is the solution
to last week's

CROSSWORD PUZZLE

P	O	I	S	O	N	L	E	A	S	T
M	A	P	E	L	A	W	E	K	E	E
A	R	E	N	A	M	P	A	T	T	E
R	E	N	A	M	E	G	R	A	I	D
N	I	V	E	S	T	A				
A	T	E	L	I	E	R	A	P	P	L
I	R	T	R	U	C	K	E	E	R	
D	R	A	P	E	L	E	D	G	E	R
E	A	M	A	T	E					
A	M	E	N	R	W	A	R	D	E	R
C	A	D	E	N	C	E				
R	I	G	A	S	K					
E	N	E	M	Y						
E	N	R	A	G	E					

In spite of shortages the handyman can make a SIMPLE DOLL'S HOUSE

It may seem very early to talk about Christmas, and to be thinking of what can be made in the way of presents. In these difficult days, however, almost everything takes a long while, and additional time must be allowed for almost every operation. You cannot go into a shop and purchase the wood or the tools, and it may mean a question of waiting a week or two before further supplies are in.

We are, therefore, raising the question now so that those who are wanting to make a model doll's house for some young friend at Christmas, may be ahead of time and not leave it until too late.

An Ordinary Box

The question of wood is probably the first consideration, and if it is impossible to purchase the material planed and in kit form, one will have to turn to the old expedient of a much simpler model made from an empty grocery box.

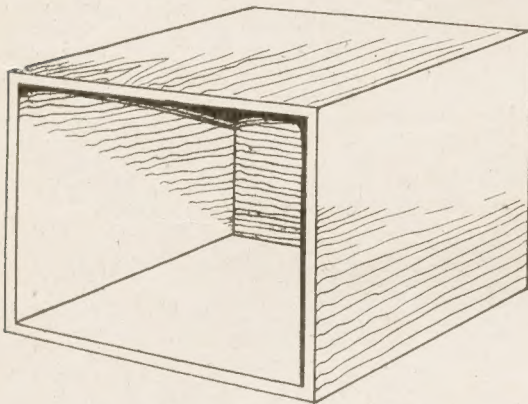


Fig. 1—Type of box required

That probably is your first delay, but by persistent enquiry round among your friends the tradesmen, or even among other friends, you will probably alight on a wooden box which is just what you require. You cannot be too particular about size, but you will have to complete your model according to the box you obtain. It should, however, be in good condition and roughly about the proportion shown in Fig. 1.

If it is in a very rough state, the first job, of course, is to glasspaper it down and to smooth it of any corners where splinters are likely to be found. Look out for any protruding nails, and if the box is at all shaky, drive some screws in at appropriate places to make it quite rigid. If you can obtain the corner brass angle plates formerly sold by ironmongers, they will help in this direction also.

A good plan, too, if you can get hold of a suitable piece of thicker wood, is to make a baseboard and fix it to the bottom so that the edges protrude about 1½ ins. all round. This will then allow you to screw the whole thing through from the underneath, so making a strong framework.

Open Front

The model is intended to have a complete front door and a gable roof sloping sideways. This roof can be made as a completely separate part of two boards joined at an angle. If the box is a long one, the angle will be greater.

In any case, the slope of the roof should not be too acute because in that way it will take up more room as well as more wood. The roof can be fitted on to be loose, and should overhang the two sides as shown in Fig. 2. Chamfer the end of one slope so it butts up underneath the other snugly. Then you can put a

The front, will, of course, be hinged and can be made either in one complete piece, or cut through as two halves. If the box is not large, it is best to have a single piece.

A Hinged Front

It is hinged at one end, and as it may be heavy, an upright rail to take the hinges should be fixed on at one end. Fix this upright to the end of the box, and make it very secure with blocking strips behind.

This is essential because in most dolls' houses only small hinges are fixed, and the door inevitably is wrenched off. Long brass hinges should be used to overcome this.

The front itself, of course, can be fitted with windows and a door, and a suggestion is given at Fig. 3 of a simple layout. The appropriate holes for the door and windows can be cut

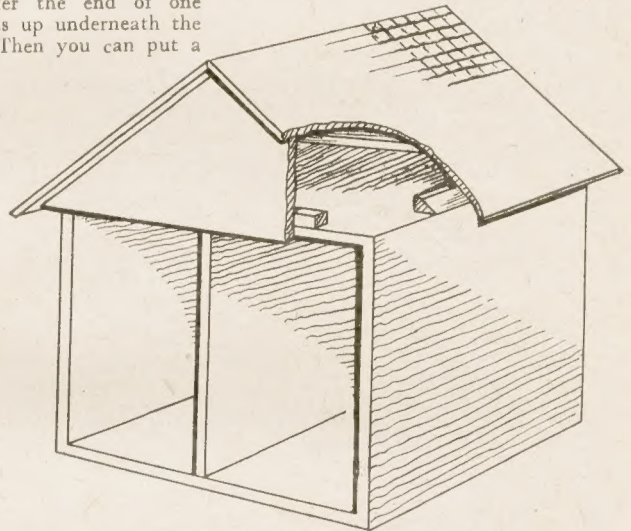


Fig. 2—Interior partition and roof fixing

front board on slightly inwards from the front edges and screwed down from above. A similar board can be fixed into the back.

Fixing the Roof

To get the roof to fit nicely, these front and back boards should be made to overlap the top. Then square blocking strips can be run along the underside as shown in Fig. 2. If these are carefully measured and fixed, the whole roof can be stood firmly in place on top of the box.

If the model is a fairly long one, a centre partition can be put down with cross boards between to form the bedroom floors. Mark these off carefully, and fix them by driving screws from the outside. Or you can put some long fillet pieces on the walls and under the top to which the partition walls and floors can be glued.

with a fretsaw or keyhole saw, and then a glass placed in.

You can probably get odd pieces of glass from a local glazier, and it is a good plan to have these at hand first before actually deciding your windows.

The glass can probably be let into the thickness of the wood by having little strips glued along back and front, as shown at A in Fig. 4. If the wood is too thin, or the glass too large, the latter can be fixed behind by standing it on wood strips and holding it there with narrower strips of stiff brown paper as shown at B in Fig. 4.

In the detail at Fig. 5 is shown a suggestion for a simple chimney stack. Two little circular pieces of wood are fitted on to a rectangular block. It is advisable, too, to sink these right into the block rather than add them on top where they are

likely to get knocked off. The chimney should be put near the ridge or a double chimney can be put centrally lodging over the ridge completely.

The Front Door

The front door can be made plain for painting afterwards, or can have a circular or rectangular fanlight of glass or transparent material in it. A suggestion of simple panelling is given at Fig. 6. It can be hung flush with the front of the house, or let in just behind it the fixing being done with small $\frac{3}{4}$ in. or lin. hinges, or a single piece of strong tape glued the whole length.

Before finally fixing, it is advisable to paint it, to add the glass and knob, as well as any other additions. Notice also that the door should be set in the front out of centre. If you cut it in the middle of the door it will be right over the partition mentioned earlier.

There is, like in most other things, a shortage of doll's house paper now, so the model will probably have to be painted. As the box is made of soft wood, a priming coat should be put on first of some grey or dull neutral colour. Put it on evenly, and allow it to soak right into the wood, and to harden off before applying the second coat.

The easiest form, of course, is to have an imitation roughcast stone. For this, stone colour paint can be used. If you want a real stucco style, you must throw fine sawdust or sand evenly on to the wet paint. Do not, however, overdo it, or get a streaky effect. Your best plan is to try your hand on a piece of wood first.

In doing it on the front, remember to cover up the windows first with a

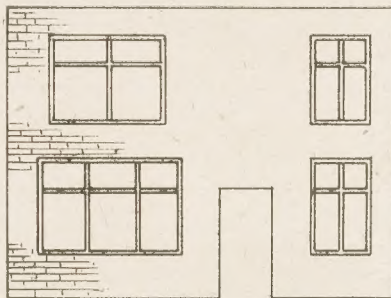


Fig. 3—Suggested layout of front

temporary piece of paper so the paint does not splash. The front should be painted before being fixed.

The roof can be lined in grey and black for slate, and the chimneys, of course, in a red brick with red chimney pots.

The ultimate appearance of the

model is made or marred by the excellence of the painting, so take your time over this operation and study any normal house, for colouring brick size, etc. The usual trouble is that the bricks are painted much too large in proportion to the house.

The inside can be plain paper, or

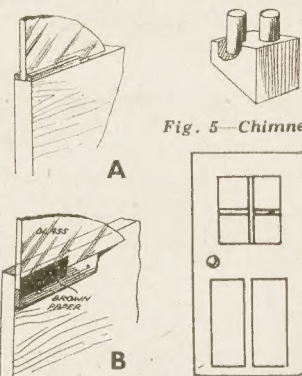


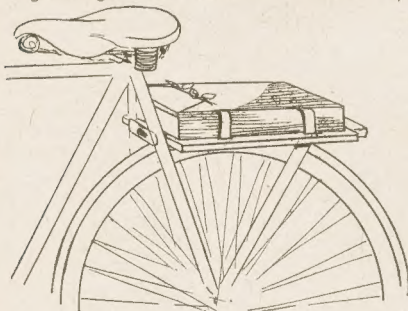
Fig. 4—Two glass Fig. 6—The door fixings

if you are fortunate enough to have some odd wallpaper of small design, this can be used in the various rooms.

Altogether, with a little forethought and care, an excellent model house should be the outcome of work between now and Christmas, and will fully repay the labour.

Convert an inner tube and water bottle into an AIR-CUSHION CARRIER SEAT

HERE are some interesting notes of a simple and comfortable carrier seat for a youngster, supplied by a reader—Mr. J. Smith of Jedburgh. He writes—"In these



The completed seat in use

days of crowded buses it is a problem travelling with children. I have solved this to my satisfaction and am sending the plans of an air cushion seat I made for my carrier, and it serves well for short journeys when my daughter (aged 6) and I travel.

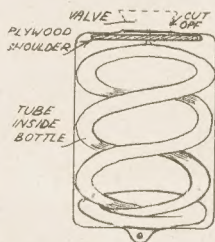
Simple Materials

The needful materials are easily procured. They are a piece of board, one cycle tube, one old hot

water bottle and a canvas case to cover all, with a few straps and tapes. The accompanying drawings give some idea of what is done.

First cut $\frac{3}{4}$ in. board, plywood preferred, the length of cycle carrier and lin. wider than width of hot water bottle. Either clamp it to the carrier or strap it on. The original had slots cut to take straps that fastened underneath.

Next make a canvas bag with flap to hold hot water bottle, as illustration. Glue the bag to the board to keep it steady in use.



Position of tube in bottle

Next cut the neck off the hot water bottle making as small an opening as possible. Insert the cycle tube into the opening valve outermost. It helps if you cut a piece of thin plywood or stiff card-

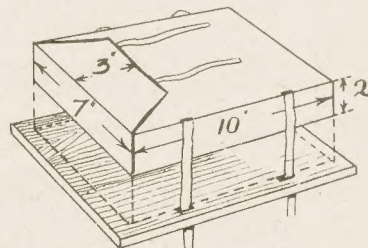
board the width of the hot water bottle and $\frac{3}{4}$ in. wide.

Drill a hole in the centre to take the cycle valve. Insert this in the hot water bottle after the tube. Then draw the valve through the hole and tighten with a rim lock nut. The pieces on either side of the tube catch under the shoulders of the bottle and keep the tube in place.

Air-Cushion Seat

When inflated the tube will fill the bottle and make a perfect air cushion. Place this inside the cover already glued to the board and tie the flap and all is ready for use.

I also fitted two stirrups on the back of cycle frame for the child's

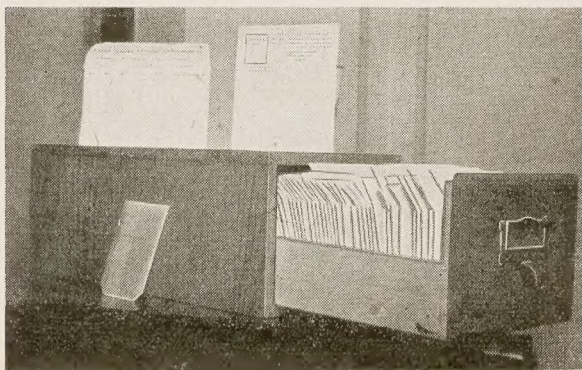


The case and straps on baseboard

toes to grip and find that she rides steady and comfortable."

Details of well-tried systems for the photographer on KEEPING NEGATIVES

THE writer has frequently been asked by friends what means he adopts for keeping the thousands of films and how is it that he can trace any one of them in a few minutes. The careful storing of negatives has for many years been something in the nature of a second hobby for obviously it is impossible to carry films about



The Filing Cabinet and Index System mentioned

in a pocket book or even in paper wallets.

When the film is dry after developing the first job is to cut it into separate negatives and put these away with all the data to record, until such time as it is wanted to use for making prints.

Here are details of two systems which were in use for a long time. Maybe neither is original, but for simplicity, efficiency and quickness we have yet to find any method to beat them.

Plates or Films

For twenty years the writer used plates for nearly all the work and these were kept in grooved boxes with index pasted on the inside lids. The original boxes in which the plates were purchased were kept and stored some hundreds of negatives in these, with a label attached to one end of the box lid bearing a record of the contents.

When he started using a film camera a new scheme had to be devised and the one adopted is one we can very confidently recommend to every amateur. Whether you are just starting photography or already have a big accumulation of negatives, you can make this filing a very pleasing occupation and soon you will find it most helpful.

An accumulation was growing at such a pace that it became very worrying. So one day a purchase was made of a small card index-filing cabinet such as is used in any office,

and the type shown in the picture would be useful for negatives. A stationer's shop sold for a few pence about a dozen guide cards, each with a tab cut along the top edge. Also about a gross of small bag shaped manilla envelopes.

The idea was to file the collection of each year separately. So on the tab of the guide card was neatly printed the date of the year as 1926, and on the next 1927 and so on. Then under the date and on the left-hand side of the card were numbers 1, 2, 3 and upwards. The next item connected with the scheme was the sorting of each year's negatives into groups, such as "Holidays at Bright-haven;" "Picnic at Princewood;" "Wedding of Tom;" "Sports at Jim's School;" the many occasions when exposures were made, the holidays, where

In the case of there were groups of subjects these would be sub-divided into "Beach Scenes;" "Landscapes;" "Farm-yard Subjects;" etc.

When this sorting was completed each group was transferred to one of the bag-shaped envelopes which had received its number and also the title of the group, and this number was duly recorded on the guide card. Eventually the guide card appeared as an index card also: here is an example—1926—No. 1 Bright-haven, Beach Scenes; No. 2 Bright-haven, Landscapes; No. 3 Bright-haven, Farmyard; No. 4 School Sports, etc., etc.

The bags containing the negatives were

placed in their numerical order behind the Guide Card in the filing cabinet. This system proved a very practical one and it answered its purpose for another 20 years.

Useful Details

It also proved useful for collecting data for printing. Each time a negative was extracted for either enlarging or contact printing, a small note of the paper and developer used and the time of exposure was made. This with the negative was then placed in a thin Cellophane envelope and then returned to its bag in the file. This information was very useful for future work not only with that, but also for any similar negative.

There comes a time, however, when most systems have outgrown their usefulness and so about six years ago it was found that while the file was still exceedingly serviceable it was not giving the service which present needs required. So the writer got busy formulating one which would help him to find any particular negative more quickly. This was necessary in order to be able to trace speedily a negative of a subject such

(Continued foot of opposite page)

Do you use a Camera?



Your Photography will become much more interesting if you do all the work yourself The booklet (32 pages) entitled **Home Photography** tells you how you can develop your own negatives, how to make Gaslight and Bromide prints and also, how to do flash-light Photography.

There is a chapter, too, on Enlargements. The Azol folder gives you Time and Temperature Tables for Tank or Dish Development and is packed with hints on using Azol. Then there is a fully illustrated list of Chemicals, useful sundries and accessories to help you in the work. These three publications will be sent for three pence in stamps. Write for them today and mention "Hobbies."

Special Trial Offer:

For 2/3 P.O. Johnsons will send you post free (G.B. only) a trial set of Chemicals, including 1-oz. bottle of AZOL, to develop eight spools 2½ in. by 3½ in., 4-oz. tin ACID-FIXING, making 30-60oz. solution, one packet AMIDOL DEVELOPER, enough for 2 to 3 doz. bromide or contact, gaslight prints. Be quite sure you mark your letter "Hobbies."

JOHNSON & SONS Manufacturing Chemists LTD., HENDON, N.W.4.

Useful for many jobs this is specially intended as a WINDOW-CLEANING STOOL

ORDINARY domestic steps are often too bulky and heavy for many of the smaller jobs round the house, so while the stool illustrated herewith is intended for cleaning lower windows which are just out of arm's reach, and for hanging clothes over a line, it will prove itself invaluable for any other kinds of work.

It is built mainly from $\frac{7}{8}$ in. wood, such as deal the widest piece being 6 ins. (the top step). Old shelves or $4\frac{1}{2}$ in. wide floor boards would enable the stool to be made.

The Step Pieces

First prepare the two step (tread) pieces, one of which is detailed at Fig. 3. Cut the wood to the desired width of 4 ins. and plane the edge neatly. The position of the tread grooves are then marked out, using a set-square and an adjustable bevel.

Begin the measuring out from the top end of the step pieces. It is possible to get the step angles and the shape of the pieces by ticking off the step position at one edge, then going in $2\frac{1}{2}$ ins. and ticking them off at the other edge. One then rules diagonal lines from tick to tick.

Having cut the wood to shape, cut

The back support legs measure 18 ins. long by 2 ins. wide by $\frac{7}{8}$ in. thick. The rear edge is checked at the top and bottom for $3\frac{1}{2}$ in. wide and 2 in. wide cross-rails.

When checked, dowel the legs to the step pieces (see side elevation). If desired, screw and glue the legs to the step pieces.

The cross-rails (14 ins. long) are glued and screwed (or nailed) to the support leg checks. Two steps $13\frac{1}{2}$ ins. long by about 5 ins. wide by $\frac{7}{8}$ in. thick are now wanted, rounded at one edge.

Glue and screw (or nail) them in their grooves so the rounded edge projects slightly at the front. The topmost step measures 15 ins. by 6 ins. by $\frac{7}{8}$. Rather than have the corners sharp, pare them round, as shown at Fig. 1. Fix in place with screws or nails, and glue pieces of blocking underneath at the corners. A 4 in. long by 1 in. wide finger grip hole is cut in the centre of the top step so the stool can be lifted about easily.

The Hand Hole

The best way to cut out the grip hole is to bore 1 in. holes right through 2 ins. apart. A keyhole saw is then used in cutting away the waste wood, following which the roughness is taken away by rasping and glasspapering.

To hold the work steady, cut

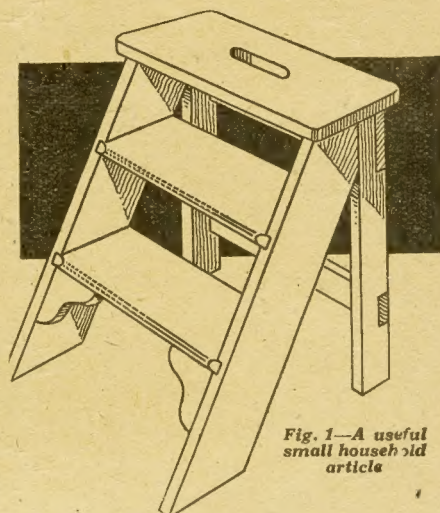


Fig. 1—A useful small household article

"wings" of the brackets and counter-sink them to suit the screw heads used. The top edge of the brackets should be planed to an angle corresponding with the angle of the steps (see constructional detail).

Only two brackets—one at each end of the lower step—are really necessary. You could add two further brackets to the underside of the topmost step.

When completely constructed, note how (from Fig. 1) the rounded edges of the steps are pared away flush with the edge of the sloping step pieces. There is no need to finish off the work in any way, as it looks best in the natural state. Moreover, it can be more readily scrubbed and cleaned when it becomes dirty.

If you cannot obtain, or find boards

wide enough to make the steps, they can be built up from narrower pieces, merely gluing them together, or dowelling if you wish, to make a strong joint.

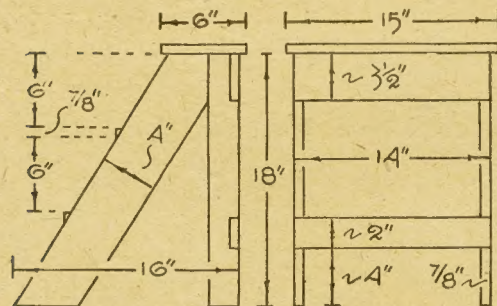


Fig. 2—Side elevation with back view showing frame

out the step channels. Run a tenon saw across the lines to a depth of $\frac{1}{4}$ in. The waste is then chiselled out with a $\frac{1}{4}$ in. chisel or a router set to cut $\frac{1}{4}$ in. deep.

out two corner brackets to the size and shape shown at Fig. 3. The grain should run in the direction shown.

Drill screw holes through the

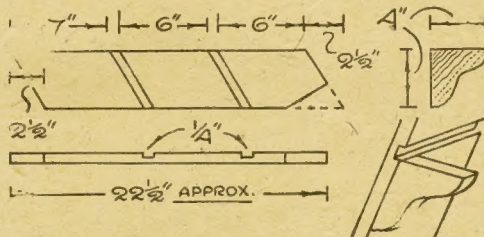


Fig. 3—The sides, with detail of step support

Keeping Negatives—(Continued from opposite page)

as Indoor Subjects; Snow Scenes; Street Scenes; Architectural; etc., etc.

It has been accomplished in the following manner. Instead of the year being at the head of the Guide Card, put the subject and on the envelopes the date and place beside the number. When a negative is required of a Street Scene you turn to the Guide Cards, which are in alphabetical order, in the filing drawer and from under (S) draw out card marked Street Scenes and read as follows:—Street Scenes—No. 1,

1936, Wickham; No. 2, 1936, Brixport; No. 3 1937, Highbury; No. 4 1937, Longshore, etc., etc.

All these negatives are of Street Scenes and you can thus select the one most suitable for the work in hand in a few seconds. It may help you to know more of the groups:—"Flowers; Waves; Clouds; Architectural (exterior); Architectural (interior); Landscapes; Trees; Woodland Paths; Lake Scenes; Sports; Historical; Portraits and Groups; Flashlights; Cliffs; Rock Pools, and any others

where you have at least half a dozen negatives.

The first system is still functioning but no additions are made to it. The second system was started in 1936 and is still in use. Both are efficient and you will find either quite good.

The cabinet drawers are made of wood, but as a temporary measure you will find a cardboard box will answer the purpose. We would, however, advise you to get standard size cards and envelopes to fit your permanent file.

If you have a carver you should know about SHARPENING A KNIFE

BLUNT table-knives should never be sharpened on an emery stone or emery cloth. To do so, of course, merely produces a rough, jagged, saw-like edge that, coming in contact with the plates, immediately is more blunt than ever. Besides, the rough, gritty surface of the grindstone scores the nickelplating, making new knives look more unsightly.

The best way to sharpen table knives, including carving knives, is with an ordinary woodworker's oil stone. The method is almost the same as plane irons and chisels are sharpened, but rather than keep the blade flat on the oilstone, only the cutting edge should rest (and be rubbed) on it.

Like a Razor Blade

The rubbing angle is thus very acute. The resultant edge will be rather like the edge seen on safety razor blades. It saves the nickelplating from being rubbed away, yet provides a neat, keen cutting edge.

Of course, if an old knife is being sharpened, the blade can be rubbed flatly on the stone and at a slight angle, doing so alternately. While sharpening one side of the blade, do not merely rub the edge straight with the length of the oilstone; rub in a firm, circular motion, preferably from one end of the stone to the other.

Turn over the blade and sharpen the other side in the same way. Try to remove the same amount of steel from both sides of the blade.

Remove the Burr

Having done both sides by rubbing in a circular motion, remove the resultant wire edge ("burr") by drawing first one side of the blade across the stone at a diagonal angle, then repeat the process with the opposite side. To finish off, the blade should be stropped on a strip of soft leather (or a razor strop), drawing it to and fro so the edge "trails" behind the movements.

Alternatively, you could draw the blade across the palm of the left hand in order to "bend off" the burr. There is no finer stropping material than the skin of the palm of the hand, and incidentally there is no danger of cutting your hand. Just "strop" the blade slowly and firmly, turning it from side to side.

Oil, of course, must be applied to the oilstone. This can be the usual oilstone oil, but clear, thin knife oil is preferred, even in regard to woodworking implements having a sharp edge.

When sharpened satisfactorily, wipe the knife blade clean with a rag, then

draw the edge down the corner of a piece of wood. This takes away the smaller, invisible particles of loose steel on the edge of the blade. It will be of interest to know that cutting edges, even those on razor blades, are, under strong magnification, seen to be a line of jagged points.

These peaks and valleys, if very fine, constitute a very keen cutting edge. We often imagine that, after sharpening a knife on an emery stone, the edge is extremely keen. We do

so because the edge seems to "grip" keenly when tested on the ball of the thumb.

No Saw Edge

Under strong magnification, however, we would see the cutting edge is just a burr—a wire edge consisting of saw-like formations of mountains and dales—not sharp-pointed peaks and valleys. Therein is the difference of a badly-sharpened edge and a properly-sharpened edge.

ALPHABETICAL HINTS

ANTOFRET cutting is greatly simplified by means of the antofret cutting table about to be described. An ordinary fretwork table is wanted, but such could be easily made as shown, from a piece of $\frac{1}{2}$ in. wood, the dimensions being about 8 ins. long by 4 ins. wide.

If you possess such a table, it can be incorporated without any damage beyond the four screw holes which have to be drilled through at the back end. Besides, should you happen to break, or lose, your table cramp, the same screw holes will permit screwing the table to the bench or work table.

Left or Right Tilt

Now, if you are a right-handed worker, the table needs to be tilted at the desired angle as shown by the fore-shortened view, i.e., towards the lefthand side. If left-handed, the table tilts to the righthand side.

To do so, a tilting block must be made. The block is (in the case of the 6 in. by 4 in. table) 4 ins. square, the thickness depending upon the degree of tilt wanted. A block 1 in. thick, bevelled away to $\frac{1}{4}$ in. at one edge, provides a suitable angle—something like 60 degrees; 45 degrees is too much, being a mitre angle, in fact.

The Cramp Groove

A groove, for the arm of the cramp, is cut down the centre of the block, as shown, keeping the groove upright with the underside of the block. The fretwork table is then affixed on the block, flush at the back end, with the screws. Use flathead iron screws, countersinking the holes in the table so the heads drive in slightly below the surface.

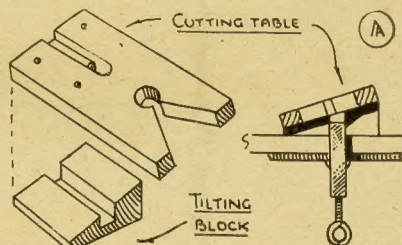
As you will realize, of course, the

antofret table suggested is only for small work. For

larger work, the tilted table must be raised up so wider and longer boards do not interfere with the bench top.

An Upright Sawblade

When using the table, keep cutting at one side of the outline (in the design shape). Just hold the handframe upright and use it in the usual



way. You will find the angle cutting easier to do, and sub-consciously, you maintain the same degree of angle.

Naturally, the antofret cutting table is suggested and designed mainly for handframe users. It is no use on a fret-machine table. Hitherto, you, as a handframe user, may have tried to hold the handframe at an angle, with non-too-pleasing results.

Hint "B" Soon

Therefore, the hint described is a good one. You will be able to keep your mind concentrated on the cutting of the shapes, knowing that the tilted table will maintain the true angle required. Look out for Hint "B" soon, this being followed with Hint "C" and so on, each of which cover a wide field of interest.